

Appl. No. 09/701,751
Art Unit 1751

Docket H 3491 PCT/US

The present invention is based on the discovery that the combination of a certain naturally occurring α -amylase with a certain peroxidic oxidizing agent unexpectedly leads to improved detergent performance. The invention requires the selection of a naturally occurring α -amylase derived from *Bacillus amyloliquefaciens* from among the hundreds of α -amylases of various natural and synthetic origins disclosed in the art.

The content of the prior art is not in dispute. Herbots discloses laundry detergent compositions comprising an amylase and an amylase-directed antibody. The amylases useful in Herbots' detergent compositions include both α - and/or β - amylases. At page 11, lines 13-24, Herbots discloses that the enzymes can be of animal or plant origin, purified or non-purified, mutant or native. While a native enzyme produced by *B. amyloliquefaciens* is disclosed at page 12, line 11, Herbots' examples do not specify the exact enzyme used in the compositions tested. Herbots' claims call for an amylase of fungal or bacterial origin within the class EC 3.2.1.1, which encompasses literally hundreds of α -amylases.

Neither does there appear to be a dispute over the differences between applicants' claims and the disclosure of the reference. Applicants very specifically call for a naturally occurring α -amylase derived from *Bacillus amyloliquefaciens*. At its most specific, the reference (in its claims) calls for an amylase of fungal or bacterial origin within the class EC 3.2.1.1, which encompasses

Appl. No. 09/701,751
Art Unit 1751

Docket H 3491 PCT/US

literally hundreds of α -amylases. Indeed, Herbots is indifferent to the origin of its amylases.

One of ordinary skill in the art would have little reason to select the claimed amylase from the myriad amylases disclosed in Herbots to combine with the recited peroxidic oxydizing agent. Even in its most preferred embodiments in the examples, Herbots does not distinguish between BANO and the other α -amylases not claimed by applicants.

A suggestion or motivation to select the claimed enzyme is required to establish *prima facie* obviousness. Most inventions are combinations, and mostly of old elements. "If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue." In re Rouffet, 47 U.S.P.Q. 1453, 1457 (Fed. Cir. 1998). Therefore P.T.O. must produce evidence from the art that would lead one of skill to select and combine the claimed elements. Even if the art could be combined as claimed, and one of skill would be capable of doing it, there is no *prima facie* obviousness absent evidence of motivation. M.P.E.P. § 2143.01. Where the rejection is based on a single reference, "there must be a showing of a suggestion or motivation to modify the teachings of that reference." In re Kotzab, 55 U.S.P.Q. 2d 1313, 1316-17 (Fed. Cir. 2000). "[T]he examiner must show reasons that the skilled artisan, confronted with the same problems and with no knowledge of the claimed invention, would select the elements from the cited prior art

Appl. No. 09/701,751
Art Unit 1751

Docket H 3491 PCT/US

references for combination in the manner claimed."
Rouffet, 47 U.S.P.Q. 2d at 1458.

The derive the invention from the disclosure of Herbots first requires selecting the claimed naturally occurring α -amylase derived from *Bacillus amyloliquefaciens* from among the hundreds of α -amylases of various natural and synthetic origins disclosed in the reference. The amylases described in Herbots' detergent include both α - and β - amylases. Herbots is indifferent to the origin of these amylases. At page 11, lines 13-24, Herbots discloses that the enzymes can be of animal or plant origin, purified or non-purified, mutant or native. No particular attention is drawn to the native enzyme produced by *B. amyloliquefaciens* disclosed at page 12, line 11, and Herbots reinforces this indifference by not specifying the exact enzyme used in the examples. Nor do Herbots' claims lead one to any specific amylase, out of the hundreds disclosed. At their most specific, the claims call for any amylase of fungal or bacterial origin within the class EC 3.2.1.1, which encompasses literally hundreds of α -amylases.

On the other hand, applicants very specifically call for a naturally occurring α -amylase derived from *Bacillus amyloliquefaciens*. Even in its most preferred embodiments, Herbots does not distinguish between BAN® and the other α -amylases not recited by applicants' claims. One of ordinary skill in the art would have little reason to select this specific amylase from the myriad amylases

Appl. No. 09/701,751
Art Unit 1751

Docket H 3491 PCT/US

disclosed in Herbots to combine with the recited peroxidic oxidizing agent.

The Board of Appeals in Ex parte Wittpenn, 16 U.S.P.Q. 2d 1730 (Bd. Pat. App. & Int. 1990) reversed a rejection under very similar circumstances. The single prior art reference taught that its surfactant composition could include a nonionic surfactant that was required by the rejected claims, though no particular preference was expressed for that nonionic surfactant anywhere in the reference. The Board concluded that since no disclosure within the reference "would have led the routineer to make the critical selections to arrive at the claimed surfactant composition, we find that no prima facie case of obviousness has been established and that the rejection before us cannot be sustained." Id. at 1731. Because Herbots is equally wanting in disclosing any preference for the claimed enzyme, rejection of the claims for obviousness over this reference should not be maintained.

The Examiner states that it would have been obvious "to select any of the species of the amylase genus taught by the reference, including α -amylase of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and thus, the same use as the genus as a whole." This statement is wholly unsupported by any evidence from the art. On the other hand, there are teachings in the art that would have led one of skill to conclude that combining α -amylases with the recited peroxidic oxidizing agents would not have been successful.

Appl. No. 09/701,751
Art Unit 1751

Docket H 3491 PCT/US

EP 0 684 304 at page 2, lines 50-58 discloses that α -amylases are particularly sensitive to bleaching agents, and that the results in any particular case are quite unpredictable. Similarly, EP 0 867 504 at page 2 discusses at length the known propensity of α -amylases as a class to become inactivated in the presence of peroxidic and other oxidizing agents. Both references (which are being provided in an Information Disclosure Statement filed separately by mail) disclose specific modifications to native enzymes to improve resistance to attack by oxidants.

Thus it is wholly unjustified for the Examiner to conclude that one of skill would expect any of the members of the vast genus of amylases disclosed by Herbots to be equally useful in the presence of an oxidant. In fact, one of skill would have concluded exactly the opposite, the presumption being that a native enzyme such as the claimed one would have been rendered unsuitable by the presence of an oxidant. Because the Examiner's unsupported presumption is belied by the actual teachings of the art, no *prima facie* obviousness of applicants' claims is established by Herbots.

CONCLUSION

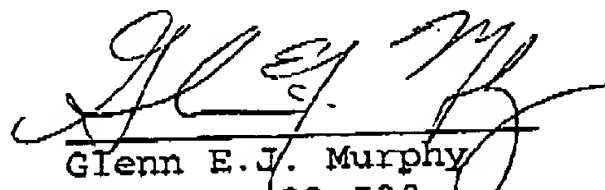
In view of the above amendments and remarks, applicants submit the claims are in condition for allowance. Applicants also ask that the shortened statutory period to respond to the Office Action of October

Appl. No. 09/701,751
Art Unit 1751

Docket H 3491 PCT/US

22, 2002, be extended three months from January 22, 2003 to April 22, 2003. Please charge our Deposit Account No. 01-1250 in the amount of \$930.00 for the extension fee. Order No. 03-0227. Should any fees be due for entry and consideration of this Amendment that have not been accounted for, the Commissioner is authorized to charge them to Deposit Account No. 01-1250. Lastly, applicants request the Examiner to contact the undersigned representative of applicants at the telephone number given below to schedule a live interview, including SPE Gupta, to take place prior to further action on this application by the U.S.P.T.O.

Respectfully yours,


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